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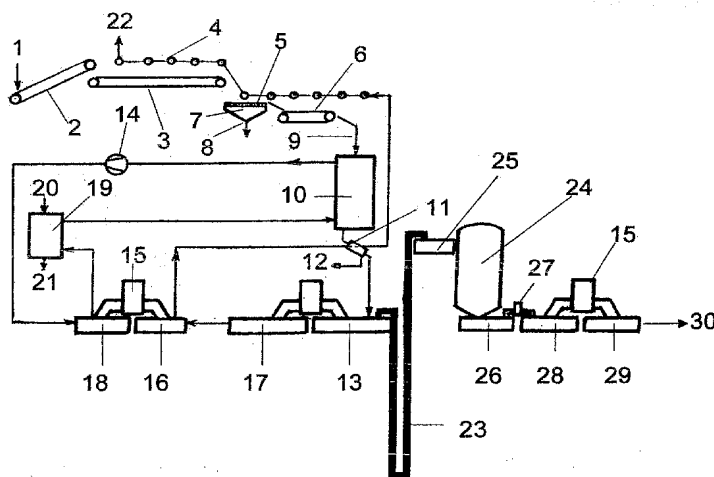
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(54) Title: RECOVERY OF STEEL FROM CONTAMINATED SCRAP



(57) Abstract: This invention provides a method for overcoming the adverse effects of disintegration of molten steel streams due to sub-surface growth of carbon monoxide bubbles when exposed to reduced pressures and thus permits refining of liquid scrap much the same way as if it were a quiescent liquid melt. Steel scrap contaminated with copper, tin, zinc and organics, such as PVC coating, is preheated and melted continuously using melt circulation and then continuously refined in-line to yield high quality liquid steel and separate non-ferrous metal byproducts by straightforward physical desorption under reduced pressure using an inert strip gas within a desorber and then subsequent iron vapour condensation by direct contacting with liquid steel followed by selective condensation of copper initially and then recovery of tin. Formation of dioxins from scrap containing chlorine is precluded by inline scrubbing of pyrolysis gas formed during scrap preheating. The initial melting of preheated scrap employs melt circulation and gas combustion rather than fossil fuel generated electricity and is thus inherently energy efficient.

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